

Report to: Committee on Appropriations

**As directed by: House of Representatives Report 106-622
Department of Transportation and Related Agencies
Appropriations Bill, 2001**

**Central Artery/Tunnel
Federal Task Force Quarterly Report**

and

**Report on
Other Major Projects**



**Prepared by: U.S. Department of Transportation
Federal Highway Administration**

October, 2001

Synopsis

The House of Representatives Report 106-622, submitted by the Appropriations Committee, requested the following reports from the Secretary of Transportation under the heading of *Central Artery/Third Harbor Tunnel Project, Boston, Massachusetts*:

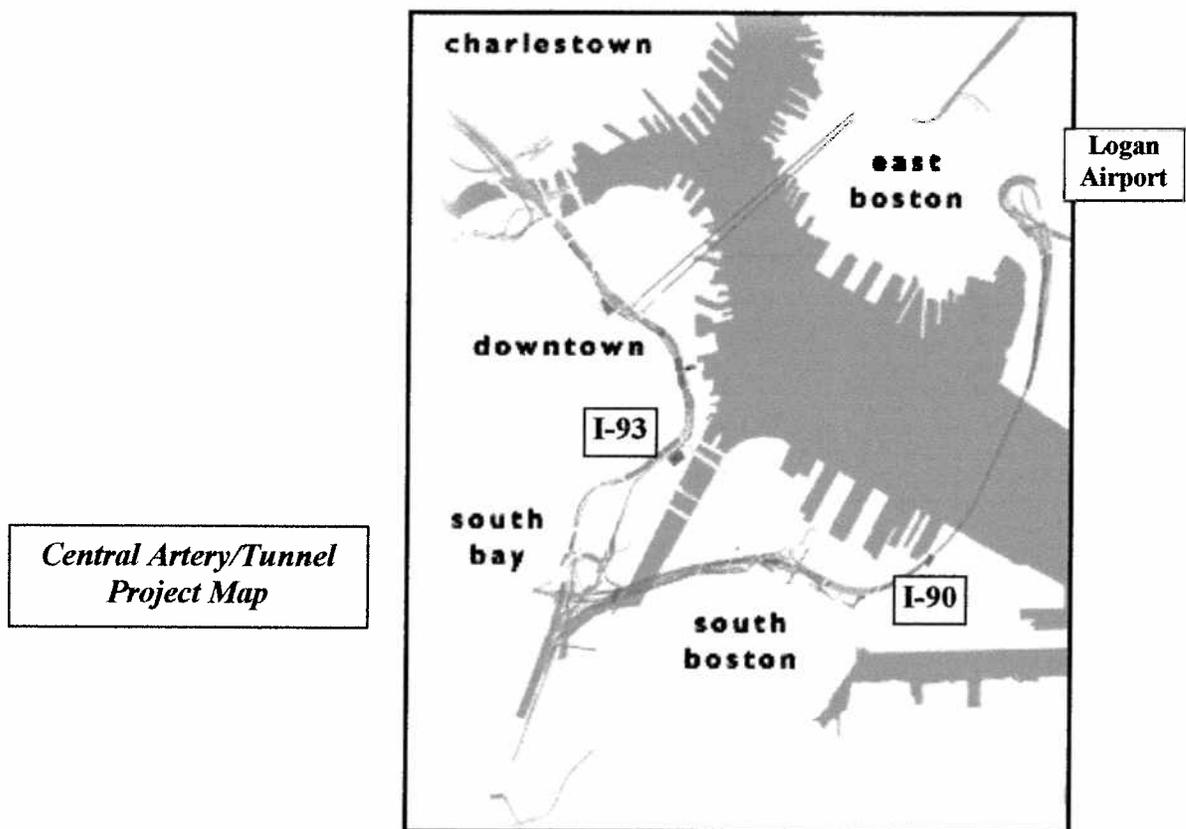
- (1) A quarterly report showing the progress and status of all recommendations in the Federal Highway Administration (FHWA) task force report. The Office of Inspector General (OIG) is to validate the accuracy of all actions reported as complete.
- (2) Specific responsibilities of the Major Projects team, established to improve FHWA Headquarter's administration and oversight of large construction projects; and to whom the team reports.
- (3) An annual summary of the reports and assessments issued by the Major Projects team, include a listing of all highway projects costing over \$1.0 billion. For each project listed, the current cost estimate, a summary of the funding sources available to complete the project, and a description of significant cost trends in the last year shall be submitted.
- (4) A listing of all highway projects totaling over \$10.0 million, for which the estimated cost has increased over the original estimate by 25 percent or more. For each project, the listing should include the original and current cost estimates, and a short description of the reasons for the cost increases.

This report is the FHWA response to this request, with the chapters of the report corresponding to the item numbers above.

I. Quarterly Report on FHWA Central Artery Task Force Report

Project Description:

The Central Artery/Tunnel (CA/T) Project is being constructed by the Massachusetts Turnpike Authority (MTA) as part of their responsibility for the Metropolitan Highway System in Boston, Massachusetts.



The CA/T Project consists of building or rebuilding 161 lane miles of urban freeway on seven and a half (7.5) miles of Interstate 93 and Interstate 90 in Boston. The project extends along I-93 from the Massachusetts Avenue Interchange south of the city, through the center of downtown, across the Charles River to Charlestown's Sullivan Square, north of the city. A new segment of I-90 (the Massachusetts Turnpike) is being constructed beginning with the interchange

with I-93, and extending easterly under the Boston Harbor to Logan International Airport and Route 1A in East Boston. Some specific aspects of the project are:

- The I-93 segment involves replacing the existing viaduct through downtown Boston with eight to ten-lane tunnels under the city, and constructing a new “state-of-the-art” cable-stayed bridge across the Charles River.
- The I-90 extension is almost entirely in tunnels and provides four new lanes under the Boston Harbor, which doubles the existing number of traffic lanes in the Sumner and Callahan Tunnels.
- The project creates more than 260 acres of new parks and open space, approximately 30 acres of which are created in downtown Boston when the existing elevated Central Artery is taken down.

Cost Estimate:

The MTA conducted a complete reassessment of the project’s cost and schedule (Cost and Schedule Update, CSU7) for the project’s October 2000 Finance Plan update. The prior complete reevaluation, CSU6, was conducted in 1995. The CSU7 assessment developed detailed forecasts for all active contracts, including quantification of all known and potential contract changes, and contractor claims. Cost estimates for all unawarded contracts (which have been completed through detailed design) were reviewed, a per annum escalation of 2.35 % was applied, a contingency for future changes prior to bid was added, a potential change allowance for issues developing during construction was incorporated, and a competitive bid market discount factor was applied.

The CSU7 reassessment also updates costs for: Force Account contracts (utilities, railroads, and interagency Service Agreements), Right-of-Way final settlement costs, Design Services costs, Project Management costs, and Insurance costs. The seven major cost elements are summarized in Table 1:

Cost Element	Current Cost Estimate	Expenditures As of 10-31-00	Cost to Complete As of 10-31-00
Design	996	871	125
Right-of-Way	572	533	39
Construction	9,120	5,667	3,453
Project Management	1,962	1,478	484
Insurance	572	526	46
Force Account	596	404	192
Contingency	258	0	258
Total	14,075	9,479	4,596

Table 1: CSU7/Summary of the Seven Major Cost Elements for CA/T Project (\$ millions)

In addition to the efforts of the MTA, the Massachusetts Executive Office Administration and Finance (EOAF) engaged Deloitte and Touche to perform an independent assessment of the CA/T project costs. Deloitte and Touche completed their report in August 2000.

The FHWA, Massachusetts Division, also completed an independent assessment of the project costs in September 2000. Table 2 presents a comparison of cost estimates prepared by MTA (CSU7), Deloitte and Touche, and FHWA.

Cost Element	CSU7	Deloitte & Touche	FHWA
Design	996	975	1,006
Right-of-Way	572	573	594
Construction	9,120	9,208	9,104
Project Management	1,962	1,907	1,953
Insurance	572	575	598
Force Account	596	568	585
Contingency	258	280	0
Total	14,075	14,087	13,840

Table 2: Comparison of Project Cost Estimates Prepared in 2000 (\$ millions)

In April 2001, the MTA completed a Cost and Schedule mid-year update, which continued to show a \$14.075 billion total project cost estimate. The next annual Cost and Schedule Update (CSU8) was submitted October 2001, but is pending review and approval. CSU8 cost information will be reflected in the next report to Congress.

Cost Developments:

Several items that may affect project costs have been identified as potential cost exposures in the October 2000 Project Management Monthly (PMM) report and the April 2001 mid-year update; however, these potential changes were shown to be within the project contingency set up for the project under CSU7.

A schedule delay was recognized in January 2001 for the I-90 portion of the project. The initial I-90 opening, originally scheduled for May 1, 2002, is now tracking to August 8, 2002. The main cause of the delay is due to lower than expected production rates for construction of the immersed tubes in the Fort Point Channel casting basin. Availability of certain crafts to enable the project to maintain schedules has been a concern for several months. Ironworkers, pile drivers, carpenters, and electricians are some of the critical crafts in short supply. Less than full employment of these crafts is the result of the high volume of construction activity locally and nationally. The MTA has compensated for this shortage by making efforts to import Canadian labor to meet these needs.

Revenue:

The revenue sources for the project, defined in the October 2000 Finance Plan and April 2001 mid-year update, are summarized in Table 3:

Federal Highway Program	7,049
Grant Anticipation Notes (GANs)	1,500
State of Massachusetts	1,465
Massachusetts Turnpike Authority (MTA)	1,408
Massachusetts Port Authority (Massport)	300
Allston Landing Sale (MTA)	185
Transportation Infrastructure Fund	2,168
Total	14,075

Table 3: CA/T Revenue Sources (October 2000 Finance Plan)(\$ millions)

It is expected that future Federal Funds will be used to pay off the principal on the Grant Anticipation Notes (GANs). These future actions will bring the total Federal funds in the project to \$8.549 billion, which is consistent with the Federal funding cap specified in the Department of Transportation's fiscal year 2001 appropriations act (P.L.106-346). The Transportation Infrastructure Fund (TIF) was established by State legislation in 2000, in an act providing additional funding for the Central Artery/Ted Williams Tunnel Project and the Statewide Road and Bridge Program. The legislation was created to address the CA/T project cost increases announced in 2000 and to ensure the equity in funding for the Statewide Road and Bridge Program. The TIF was established by contributions from MTA (\$200 million), Massachusetts Port Authority (\$65 million), excess license and registration fees (\$231 million), Commonwealth Debt Reduction Plan (\$823 million), bonds (\$1,350 million), and earned interest (\$159 million), for a total of \$2.828 billion. The balance not used on the CA/T project will go towards the Statewide Road and Bridge Program.

Federal Funding Limits:

Federal funds were limited by agreement between the State and FHWA to \$8.549 billion. As stated above, this funding cap has been put into Federal law as Sec. 340 of the Department of Transportation's fiscal year 2001 appropriations act (P.L.106-346). An agreement between State and local officials also restricts the amount of Federal funds obligated annually by the State of Massachusetts that can be used on the CA/T Project. The split is 71/29 (71% for the CA/T Project to 29% for the rest of the State program) through fiscal year 2002, and 50/50 for 2003 and future years.

Contingencies:

The October Finance Plan and April 2001, mid-year update, identified other potential revenue sources that could be available in case a revenue shortfall occurs in the future.

- Additional Massachusetts Turnpike Authority bonding.
- 3rd party contribution for South Boston surface roadways.
- Future Real Estate & Air Rights developments.
- Potential Revenue from Insurance Trust Withdrawals.

Design Status:

Project design is considered to be 99% complete. Nineteen (19) construction contracts remain to be advertised. The total cost estimate for the remaining contracts is approximately \$800 million. The I-93/I-90 Interchange ramps and restoration (Contract CO9C2) at \$164 million; and the I-93 Southbound Oliver to Kneeland, I-93 tunnel reconstruction, and viaduct demolition (C17A6) at \$450 million; are the only two remaining contracts in excess of \$100 million.

Construction Status:

Construction is approximately 71% complete overall. The Ted Williams Tunnel and Initial Leverett Circle connector are complete. I-90 is approximately 71% complete and I-93 approximately 66% complete. The system-wide work, which includes elements such as material disposition and the tunnel finishing work, is approximately 50% complete.

Opened to Traffic Segments:

The Ted Williams Tunnel (future I-90) across Boston Harbor was opened in December 1995 to commercial traffic. Other vehicles are accommodated with special permits, and the

general public has access during announced high-volume periods such as holiday weekends and school vacation weeks, in order to improve access to Logan International Airport.

The Initial Leverett Circle connector was opened to general traffic in October 1999. It provides much improved access to and from I-93, north of the City of Boston.

Schedule:

The current schedule is focused on five key remaining milestones:

- **Initial I-90 opening**, original target date May 1, 2002, now tracking to August 8, 2002.
- **Opening of I-93 Northbound lanes**, target date November 1, 2002.
- **I-90 substantial completion**, target date July 1, 2003.
- **Opening of I-93 Southbound lanes**, target date November 15, 2004.
- **Project substantial completion**, target date December 31, 2004.

Owner Controlled Insurance Program (OCIP):

In the early 1990's, the decision was made to institute an Owner Controlled Insurance Program for the CA/T Project in lieu of having the individual contractors and consultants provide their own insurance. The program provides worker's compensation, general liability, builder's risk professional liability, airport liability, and railroad protective insurance coverages. Worker's compensation and general liability coverages were established with the project retaining much of the risk through large deductibles. Premiums are paid into trust accounts maintained under agreements between the State, insurance company, and the bank to ensure that funding would be available to meet the State's liability for the deductibles. The trust balances increased because the initial premium payments were based on workforce projections that did not materialize for three or four years, and because the project's safety program has been very successful in maintaining losses

below national averages. The amount of funds in the trust, length of time the high trust balance was to be retained, and the future use of the trust funds were all issues raised as concerns by oversight agencies. In addition, the Office of Inspector General (OIG) questioned whether or not the CA/T OCIP should be considered a self-insurance program, requiring that a maximum cap be established on the trust balance amount. The U.S. Department of Treasury also was involved in determining whether the OCIP should be considered a self-insurance program or a broker-insurance program owned by the Government entity.

In 2000, the CA/T Project did a reassessment of their OCIP. FHWA also had a consultant do an independent evaluation of the CA/T OCIP. Both evaluations recommended continuing with the OCIP, but maintaining trust balances at a lower amount. Since then, approximately \$180 million has been withdrawn from the trust, based on the FHWA consultant recommendation and for the processing of payments for insurance coverage. The assessments also recommended increasing owner control and oversight. MTA has now taken over many of the oversight activities previously held by the brokers.

Summary of FHWA Task Force Review:

As a result of a \$1.4 billion cost increase announced in February 2000, and the follow-on criticism of State and Federal oversight activities, an FHWA Task Force under the Deputy Administrator was established to review project oversight and costs. The Task Force report was issued in March 2000. The report made 34 recommendations. The following is a summary of the recommendations:

- The Task Force recommended that the U.S. Secretary of Transportation consult with the Governor of Massachusetts to discuss changes in the State CA/T **Project leadership** consistent with the recently announced change in the Federal CA/T Project leadership. The outcome resulting from these changes was that the FHWA Division

Administrator, the Chairman of the Massachusetts Turnpike Authority, and the CA/T Project Director for the Turnpike Authority were all replaced.

- Seventeen (17) of the thirty-four (34) recommendations dealt with items concerning the preparation of the **Finance Plan**. These items included establishing a national policy on the preparation and review of Finance Plans for major projects; providing an independent cost estimate of the project by FHWA on an annual basis; providing an independent certification of the Finance Plan information by another State agency; and including contingency plans to cover potential revenue shortfalls or cost overruns. The Finance Plan Guidance for major projects was issued by FHWA on May 23, 2000, and requires Finance Plans for all projects with an estimated total cost of \$1.0 billion or more, or projects involving a high level of interest by the public or Congress. The FHWA November 29, 2000, acceptance of the October Finance Plan, and the OIG Report dated November 29, 2000, indicated that these items have been completed to the satisfaction of FHWA and OIG. These items will all be of a continuing nature in that follow-through will be required with each annual update cycle.
- The Task Force recommended that the Massachusetts Highway Department (MHD) reach agreement with local officials to obtain a **balanced Statewide program**. The need for funding equity between the CA/T Project and the Statewide Road and Bridge Program was addressed through a Memorandum of Understanding (MOU), executed between the State and twelve of its thirteen Metropolitan Planning Organizations (including the Boston area MPO). The MOU establishes the types of construction and related transportation activities that will count towards the \$400 million Statewide Road and Bridge Program expenditure target. FHWA, MHD, and the State Legislature are all monitoring compliance with the MOU.
- Several of the Task Force recommendations addressed the need for specific actions related to the CA/T Project such as more open communications, availability of information to oversight agencies and the public, a stronger role by FHWA and the State in independent analyses of costs, and monitoring factors affecting costs. These recommendations are being addressed through the Project Management Monthly (PMM) Report and the Quarterly Report required by the Finance Plan acceptance letter. The PMM report format has been revised to include more cost and schedule information, and information on speculative issues that may affect project cost. The oversight agencies and the press are invited to the monthly presentation of the PMM report to the MTA Chairman. In addition to the annual update of revenue information in the Finance Plan Updates, the Project will provide a Quarterly Report detailing the status of their revenue forecasts, including borrowing and investment interests.
- The Task Force recommended the establishment of a national policy on **Owner Controlled Insurance Programs** (OCIPs). AON Risk Services Incorporated, a sub-consultant of AECOM, provided technical assistance to FHWA in evaluating the CA/T Project's OCIP. The final report was issued in May 2001 (see previous section on Owner Controlled Insurance Program). AECOM is now in the process of developing

the national OCIP policy. The FHWA is targeting February 2002 for issuance of the final OCIP national policy.

- As recommended by the Task Force, an **agreement** was executed on June 22, 2000, between the MTA, the MHD, and the FHWA to formally initiate and implement the Task Force recommendations.

All Task Force recommendations, except for the establishment of the national OCIP policy, have been implemented, with action completed or complete with continuing activity in-place.

Appendix A provides a detailed summary of the implementation of the Task Force recommendations.

Office of Inspector General (OIG) Validation

OIG has not yet conducted its validation of the action taken in response to the recommendations. OIG conducted a review of the CA/T Project's October 2000 Finance Plan Update, and confirmed that the cost and funding assumptions were reasonable and that the plan conformed with FHWA's Finance Plan Guidance (OIG Report No: IN-2001-009 dated November 29, 2000). On April 17, 2001, OIG announced a follow-up review of the overpayment of premiums for the CA/T Project's Owner Controlled Insurance Program. An audit to validate the actions taken in response to the Central Artery Task Force recommendations is currently included in the OIG's 2001 work plan.

II. Role and Responsibilities of FHWA Major Projects Team

The FHWA approved the formation of a Major Projects Team as part of the Headquarters staff in April 2000. The team is part of the Contract Administration Group, Infrastructure Core Business office. The Major Projects Team consists of three members: a team leader, a financial representative, and an engineering representative. The team leader is responsible for coordinating major project policy and guidance with the Division Offices, OIG, GAO, and other internal offices and external agencies; for acting as the main focal point in disseminating status reports and other major project issues to FHWA and DOT top management; and for providing general direction and duties to the team members. The financial representative is responsible for reviewing initial Finance Plans and annual updates (particularly the financing and revenue portions of the plans), for initiating financial audits and follow-up reviews, for overseeing the Owner Controlled Insurance Program policy and guidance, and for providing guidance on other innovative financing procedures for major projects. The engineering representative is responsible for reviewing initial Finance Plans and annual updates (particularly the cost estimate portion of the plans), for initiating FHWA independent cost estimates and verifications, for providing guidance on Design-Build procurements and other innovative contracting procedures, and for providing guidance on general Project Management aspects of major projects. Figure 1 depicts the FHWA organizational structure, and the location of the Major Projects Team.

The Major Projects Team is involved in all major projects, with “major projects” being defined as projects that exceed \$1.0 billion, or those projects that are designated by senior management because of their complexity or controversial issues. The specific responsibilities of the team are included in the following items.

General Responsibilities:

- Act as the focal point for the Agency in the overall program and policy oversight of large, complex projects.
- Prepare guidance for issuance by the Office of Infrastructure on the administration and oversight of these projects.
- Provide input on the development of regulations on the use of Design-Build procurement procedures. Review and provide guidance on innovative contracting proposals and other experimental or pilot project features.
- Develop guidance for issuance by the Office of Infrastructure on the use of Owner Controlled Insurance Program and other innovative programs.
- Review and manage the implementation of recommendations from GAO and OIG audits and reports for major projects. Work proactively with GAO and OIG to keep lines of communication open.
- Advance the technology that is being deployed on these major projects by collecting and sharing best practices.

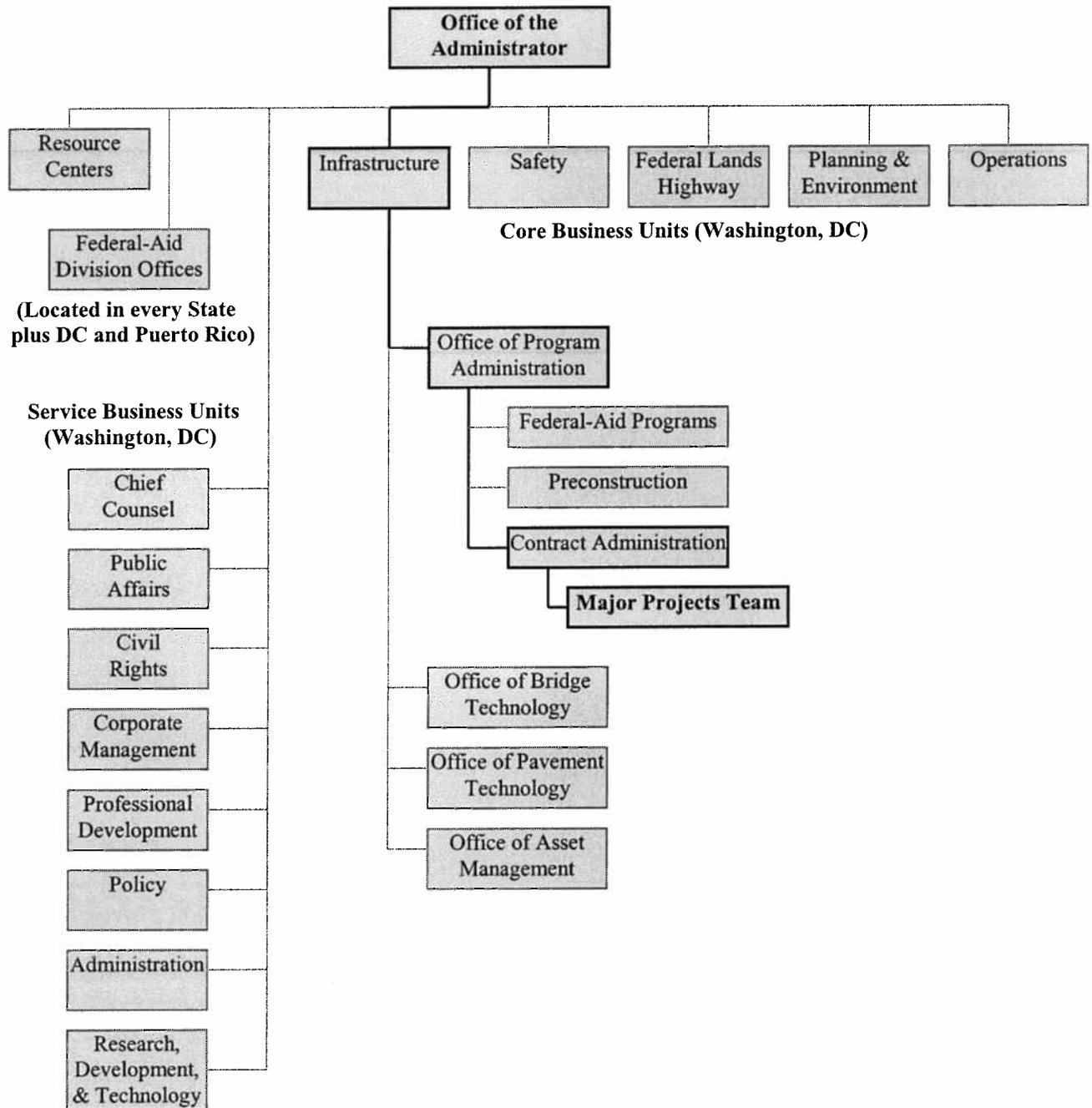
Project Specific Responsibilities:

- Proactively assist the Division Offices in the early stages of a major project to assess areas of vulnerability and their respective degree of risk including finances, public relations, environmental evaluations/commitments, design development, right-of-way, construction, project management, and contract administration.
- Review project estimates. Provide assistance for FHWA independent verification of financial and other data.
- Assist the Division Offices by providing an independent review of the initial Finance Plans and the annual updates.
- Assist the Division Offices in providing Status Reports to top management on identified major projects.

For each major project, the Program Manager, Office of Infrastructure, is required to concur in all initial Finance Plans and annual updates prior to the Division Offices concurring in the same documents. The Division Offices are the responsible FHWA office for final Finance Plan

concurrence, project administration, and project oversight. The Headquarters and Resource Center staffs are available to provide guidance and technical assistance to the Division Offices.

Figure 1: FHWA Organizational Chart



III. Annual Summary of Major Projects Team Reports and Assessments

The Committee also requested an annual summary of the reports and assessments issued by the Major Projects team. This submission is to include a listing of all highway projects costing over \$1.0 billion. For each project listed, the current cost estimate, a summary of the funding sources available to complete the project, and a description of significant cost trends in the last year shall be submitted.

Major projects that are currently being tracked are shown in Table 4 – FHWA Major Projects. There are additional projects in the early development or environmental stages that have not had Financial Plans developed yet; therefore, no initial cost baseline has been established.

In addition to project specific activities, the Major Projects team:

- Issued the Financial Plan Guidance on May 23, 2000. The guidance was then published in the Federal Register on January 5, 2001, with an opportunity for public comment. In July 2001, responses were sent back to all agencies providing comments.
- Participated in the DOT Large Infrastructure Task Force, which prepared recommendations for all DOT agencies to implement improvements to the management of large transportation infrastructure projects.
- Published an initial information pamphlet on major projects in December 2000. The purpose of the information pamphlet is to share information with all FHWA staff on innovative ideas and issues associated with the development and administration of major projects. A follow-up information packet was issued in June 2001.

Table 4: FHWA Major Projects

Project Name	Project Location	Description	Status	Oct. 2000 Estimated Cost (billions)	Oct. 2001 Estimated Cost (billions)	Funding Sources	Remarks
Alameda Corridor	Los Angeles, CA	20-mile express line corridor linking Los Angeles and Long Beach ports with rail network in downtown Los Angeles.	Construction began in April 1997. Completion expected late 2002.	\$2.4	\$2.4	FHWA (STP) funds \$44.4 million, DOT Loan \$400 million; remainder State and local funding.	Annual Finance Plans not required. Bimonthly status and financial reports predate Finance Plan requirement.
I-80/San Francisco-Oakland Bay Bridge (East Span)	San Francisco-Oakland, CA	Replacement of San Francisco-Oakland Bay Bridge East Span.	Final EIS signed April 2001. ROD signed July 2001. 1 st of 5 contracts advertised July 2001. Bid opening scheduled for Nov. 2001.	\$1.65 (Environmental stage estimate)	\$2.6	Sponsors applying for DOT TIFIA loan. Remainder of funding from Federal bridge rehabilitation funds and State funds.	Finance Plan submittal and approval required prior to any Federal funding approved for project construction. State legislature approved maintaining or raising tolls on bridge.
I-25/I-225, Southeast Corridor	Denver, CO	Reconstruction of 18 miles of I-25 and I-225, construction of 19 miles of light-rail transit line with 13 new rail stations.	Design-Build contract awarded May 2001. Completion scheduled for Sept. 2006.	\$1.7	\$1.7	FTA New Starts funds \$525 million, FHWA \$532 million; remainder State and local funding.	Initial Finance Plan approved May 2001. Annual updates to follow, beginning Nov. 2001.
Miami Intermodal Center	Miami, FL	Construction of multi-modal center for Miami International Airport, incl. rental car garage, inter-modal center, people mover, and roadways.	Due to Sept. 11 attacks, the entire 5-year work plan is being reevaluated. Only right-of-way acquisition will continue at this time. Design and construction are on hold.	\$1.35	\$1.42	TIFIA \$433 million, FHWA/FTA \$107 million; remainder State and local funding.	Finance Plan update received Sept. 2001, but will need to be reevaluated due to Sept. 11 attacks. Both cost and schedule will be impacted. Revised Finance Plan update will be required as soon as reevaluation is complete.
I-4/I-275	Tampa, FL	Reconstr. and upgrade approx. 13 miles of I-4, I-275, and the N. Memorial Highway to improve capacity.	EIS completed 1996. ROD issued Jan. 1997. Construction of first two interchanges underway.	\$1.3±	\$1.3±	FHWA/State normal funding (90/10 for Interstate and 80/20 for Congestion Management)	This project was initially classified as a "Corridor" project (to be constructed in many smaller segments over an extended period of time). After further evaluation, the Major Projects Team forwarded a recommendation to Division Office, noting that this project should be monitored as a major project,

Project Name	Project Location	Description	Status	Oct. 2000 Estimated Cost (billions)	Oct. 2001 Estimated Cost (billions)	Funding Sources	Remarks
							requiring Finance Plans. Final decision is pending.
Central Artery/Tunnel	Boston, MA	7.5 miles of reconstr./new construction on I-90 and I-93 in downtown, Boston.	Construction is 71% complete, with completion expected Dec. 2004.	\$13.6±	\$14.075	FHWA funds w/cap of \$8.549 billion; remainder State and local funding.	Major updating of cost projections for entire project; FHWA and MTA have changed project management reports to be more forthcoming in information. Project Management Monthly meetings firmly established. Last Finance Plan update approved 11/29/00. CSU8 received Oct. 2001. FHWA approvals on hold until review and acceptance is complete.
Central Texas Turnpike	Austin, TX	Construct 90 mile toll facility to ease congestion on I-35. Project will be 4 segments, with largest segment (SH 130) well over \$1.0 billion.	Final EIS and ROD completed for 4 segments. The 4 segments will be constructed simultaneously, with final completion approx. 2009.	\$2.6± (Environmental stage estimate)	\$3.22	TIFIA \$800 million, remainder State and local funding.	Initial Finance Plan submitted with TIFIA loan application. Currently coordinating TIFIA financial plan reporting to be in line with FHWA Financial Plan Guidance. FHWA approval required prior to award of 1 st Design-Build contract.
I-15 Corridor	Salt Lake City, UT	Reconstr. 17 miles of I-15, with HOV and auxiliary lanes added.	Construction completed Summer 2001.	\$1.6	\$1.6	FHWA \$141 million (including converted Advance Construction) \$249 million AC not converted; remainder State funding.	Project completed on schedule and within budget. OIG report issued Nov. 13, 2000 was favorable to the project management of this project.
Springfield Interchange	Springfield, VA	Reconstruct I-95/I-495 and I-95/Route 644 interchanges, with separation of local, through, and HOV traffic and direct ramp access.	I-Complete. II and III-Under constr., 95% complete. IV-Under constr., 32% complete. V-Constr. just beginning. VI and VII-Design. VIII-On hold until Beltway HOV is designed	\$0.552	\$0.682	FHWA/State normal funding (90/10 for Interstate and 80/20 for Congestion Management)	Project was added to the major projects list this calendar year due to overall cost increases noted on the project.

Project Name	Project Location	Description	Status	Oct. 2000 Estimated Cost (billions)	Oct. 2001 Estimated Cost (billions)	Funding Sources	Remarks
I-95/ Woodrow Wilson Bridge	Potomac River Bridge, MD, VA, DC	Replacement of existing 6-lane bridge with new 8-lane double structure, plus auxiliary and HOV lanes. Reconstruction of adjacent interchanges.	Dredging and Foundations contracts awarded. Superstructure and Interchange contracts expected to be awarded late 2001. 25± contracts expected, with EB bridge completion late 2004 and WB bridge completion late 2006.	\$2.173	\$2.443	Federal funds \$1.586 billion from TEA-21, WWB Financing Acts, and RABA; remainder State funding.	Ownership agreement and initial Finance Plan approved. Resolution of lawsuit regarding Project Labor Agreements is pending for MD contracts.

IV. Tracking Of Projects \$10 Million Or Greater With Large Cost Growth

The final request of the Committee was for the FHWA to compile a list of all highway projects totaling over \$10.0 million, for which the estimated cost has increased over the original estimate by 25 percent or more. For each project, the FHWA was requested to provide a short description of the reasons for the cost increases.

The report, entitled *Project Cost Increases*, was previously transmitted to the Chairman of House Subcommittee on Transportation, Committee on Appropriations, on April 24, 2001. As noted in the transmittal letter, the FHWA Division Offices reviewed more than 1,500 individual projects that had been authorized at \$10.0 million or more between October 1, 1996 and January 31, 2001. Of these projects, less than 80 individual projects were identified as exceeding the original estimate by 25 percent or more, and 12 of the 80 projects were related to the CA/T major project. There was a wide array of reasons for the cost increases, some of which included unknown subsurface conditions, unanticipated hazardous waste disposal, scope of work additions, incentive payments for early completion, design errors, and low initial cost estimating. Also noted in the transmittal letter was that the FHWA had not received cost increase information from one State. Subsequently, this one State reported that no projects exceeded the original estimate by 25 percent or more; therefore, the *Project Cost Increases* tabulation as sent to the Chairman of the House Subcommittee on Transportation and as shown in Appendix B is the final listing.

Detailed listing of the
Federal Task Force on the Boston Central Artery/Tunnel Project
Review of Project Oversight and Costs
34 Recommendations

Brief Description of Recommendations

- #1 - **Division Office make annual, independent cost-to-complete estimate**
- #2 - Division Office document process used for developing independent cost estimate of CA/T Project
- #3 - FHWA establish monitoring practices and procedures for mega-projects
- #4 - **Division Office expand finance plan review role for Financial Specialist and P&R Program manager**
- #5 - FHWA determine MHD and MTA to be “high risk” grantees with respect to CA/T Project
- #6 - Secretary request Governor to reevaluate MTA’s day-to-day role in CA/T Project
- #7 - **CA/T Project management to meet all external information or access requests**
- #8 - FHWA require Bechtel/Parsons-Brinkerhoff (B/PB) to submit certified letter describing their role in management of CA/T Project, etc.
- #9 - FHWA make recommendation on debarment and suspension action under 49 CFR Part 29
- #10 - **Division Office continue to ensure oversight and coordination efforts to contain costs, delay, and conflicts**
- #11 - Secretary consult with Governor about changing State CA/T Project leadership
- #12 - **Division Office document system for aggregation of cost and schedule related data routinely accumulated**
- #13 - FHWA Headquarters withdraw MA Division’s acceptance of Finance Plans (FP) for CA/T Project
- #14 - Division get written assurance from MA for receipt of all State independent audit data on CA/T Project
- #15 - **CA/T Project perform annual bottom-up review for the remaining years of the CA/T Project**
- #16 - **CA/T Project PMM data to show potential project cost exposures identified in the Up/Down chart**
- #17 - **CA/T Project PMM to discuss projected delays and MTA mitigation measures being considered**
- #18 - FHWA require FP based on more realistic cost and revenue scenarios and include contingency plans
- #19 - FHWA require FP include all costs; regardless of source of funding; include costs borne by State
- #20 - FHWA require annual budget and cash flow needs; include GANs repayments and AC conversion
- #21 - **FHWA require FP include a short discussion of past costs and impact on the initial assumptions**
- #22 - **MHD to reach agreement with local officials on the terms of a balanced statewide program**
- #23 - **FHWA not allow post-construction credits and revenues as offset reductions to CA/T Project costs**
- #24 - **CA/T Project obtain independent certification of accuracy of Finance Plan information**
- ** #25 - **FHWA have independent contractor review CA/T Project OCIP and help develop National OCIP policy**
- #26 - **CA/T Project adjust bid discount rate to properly reflect recent trends; add described adjustments**
- #27 - **FHWA require Finance Plan include revenue sources likely available to the CA/T Project**
- #28 - **State’s option for general funds to serve as surety until other funding sources are identified**
- #29 - **CA/T Project potential forecast for all project elements should be best estimate of the completion cost**
- #30 - **CA/T Project potential forecast should be maintained on a current basis for all project elements**
- #31 - **CA/T Project potential forecast total should not be constrained by MTA policy**
- #32 - **CA/T Project furnish FHWA, quarterly, overall CA/T Project Budget vs. Potential Forecast Variance Report**
- #33 - **CA/T Project and FHWA continue with cost containment initiatives to achieve greatest savings**
- #34 - **FHWA and MHD enter into agreement to formalize task force recommendations**

unbold = recommendation fully completed

bold = initial recommendation completed, continuous (on-going) activity in-place

** = initial recommendation not yet completed

**Summary of Actions Taken to Address the
Recommendations of the
Federal Task Force on the Boston Central Artery/Tunnel Project
Review of Project Oversight and Costs**

#1 Recommendation: The Division Office should make an annual, independent cost-to-complete estimate to be used as a primary source of information for decision making regarding the adequacy and acceptability of all future Finance Plans submitted for the Central Artery/Tunnel (CA/T) Project.

Responsible Office: Massachusetts Division

Responsible Individual: Brad Keazer, Carl Gottschall

Initiative(s) and Target Date(s)

- Division Office will do cost to complete estimate for annual Finance Plan Submission - October 2000

Status

Completed/Continuous on an annual basis (**On-going**)

- MA Division Office completed their independent cost-to-complete estimate in September 2000 for use in determining the adequacy and acceptability of the October 2000 Finance Plan Update. (MA Division Office completed an independent cost-to-complete estimate for the March 2000 Finance Plan Update submission. This estimate was used in the preparation of the Federal Task Team's March 31, 2000, report).

#2 Recommendation: The process used by the Division Office staff in developing the independent cost estimate should be fully documented and refined with assistance from other elements of the FHWA. It should be published as a best practice for use in other mega-projects.

Responsible Office: Massachusetts Division

Responsible Individual: Brad Keazer

Initiative(s) and Target Date(s)

- MA Div. will document cost to complete estimate process used - June 2000

Status

Completed

- July 12, 2000, the MA Division Office completed a documented summary of their process by major project elements.

#3 Recommendation: The FHWA must establish monitoring practices and procedures for mega-projects.

Responsible Office: Infrastructure

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- develop monitoring practices and procedures

- develop finance plan guidance

Status

Completed

- April 11, 2000, issued the Major Project Team Concept Paper which contains the monitoring practices and procedures

- May 23, 2000, issued Finance Plan Guidance

#4 Recommendation: The Division Office should expand the roles of current staff to include a review of the Finance Plan by the Financial Specialist and the Division Planning & Research Program manager. This will provide a technical analysis of the information presented in the Finance Plan, and provide additional assurances on the adequacy of data contained in the document.

Responsible Office: Massachusetts Division

Responsible Individual: Division Administrator

Initiative(s) and Target Date(s)

- MA Div. will use Finance and Planning staffs to assist in review of the annual Finance Plan Updates, including the one which was delivered to the FHWA on June 16, 2000

Status

Completed/Continuous on an annually basis (**On-going**)

- June 16, and October 1, 2000, Finance Plan Updates were reviewed by the MA Division Office; the Finance Specialist and the Planning Specialist assisted with the review and provided input into the comments, which were provided to FHWA Headquarters during the completion of the FHWA internal review. These specialists will be involved in all future reviews of Finance Plan Updates.

#5 Recommendation: The Task Force recommends that the FHWA determine that the Massachusetts Highway Department (MHD) and the Massachusetts Turnpike Authority (MTA) are "high risk" grantees as defined in 49 CFR Section 18.12, with respect to the CA/T Project. As high risk grantees, these agencies must provide more detailed financial and project management reports.

Responsible Office: Infrastructure and Administration

Responsible Individual: Dwight Horne and Max Inman

Initiative(s) and Target Date(s)

- letter to MHD and MTA

Status

Completed

- June 15, 2000, issued letters to the MHD and the MTA designating them as high risk grantees and outlining the terms of the designation

#6 Recommendation: The U.S. Secretary of Transportation should request that the Governor of Massachusetts reevaluate the appropriateness of the MTA's continuing role in day-to-day management and control over the CA/T Project.

Responsible Office: Office of the Secretary

Responsible Individual: Secretary of Transportation

Initiative(s) and Target Date(s)

- Secretary makes request

Status

Completed

- April 11, 2000, Secretary met and discussed MTA role on CA/T project management with the Governor. Following this meeting, the Governor changed the MTA manager; MTA continues to manage the day-to-day activities of the CA/T Project.

#7 Recommendation: It is recommended that the CA/T Project management take whatever steps are necessary to ensure that all requests from external monitoring agencies for information, records, or access to records are met in a responsive and timely fashion. A failure to provide this access should be considered a violation of 49 CFR Section 18.42(e), which will impact the reimbursement and further availability of Federal funds.

Responsible Office: Massachusetts Division

Responsible Individual: Brad Keazer, Carl Gottschall

Initiative(s) and Target Date(s)

- Meet with new Chairman and CA/T Staff to enlist their support for much improved accessibility to records by oversight agencies.
- Continue monthly (no less frequently than bimonthly) audit coordination meetings to follow-up on progress, quality of information provided, and access issues.
- Include this item in the Partnership Agreement

Status

Completed/Continuous on a monthly basis (**On-going**)

- April 20, 2000, met with Chairman and received assurance that availability of information to oversight agencies and the public was one of his goals.
- Met with senior CA/T staff and received assurance that audit coordination and follow-up actions were being reassigned from the legal department to the Acting Assistance Project Director with a new position being established as the focal point for these activities.
- June 22, 2000, included as Item #3 in the Project Partnership Agreement executed by Executive Office of Transportation and Construction (EOTC), MHD, MTA, and FHWA

#8 Recommendation: Require Bechtel/Parsons-Brinkerhoff (B/PB) to submit a certified letter to the Federal Highway Administrator describing their role in the management of the CA/T Project, including whether either company raised questions regarding escalating cost exposure and/or the decision to withhold material information from the FHWA.

Responsible Office: Infrastructure

Responsible Individual: Vince Schimmoller

Initiative(s) and Target Date(s)

- letter to MTA with copy to B/PB
- certified letter to be received from B/PB

Status

Completed

- May 11, 2000, letter sent to MTA with copy to B/PB; requested that B/BP submit the certified letter
- June 16, 2000, B/PB certified letter received and accepted.

#9 Recommendation: It is recommended that the FHWA Office of Chief Counsel review the circumstances surrounding the failure to disclose information concerning the potential \$1.4 billion overrun and recommend whether to take action under 49 CFR Part 29 - Governmentwide Debarment and Suspension (Nonprocurement) and Governmentwide Requirements For Drug-free Workplace (Grants).

Responsible Office: Chief Counsel

Responsible Individual: Harold Aikens

Initiative(s) and Target Date(s)

- Conduct a review of the circumstances
- Recommend whether to take action under 49 CFR Part 29 by June 30, 2000

Status

Completed

- July 7, 2000, the Office of Chief Counsel recommended that "With the changes in management of the CA/T Project and implementation of the other task force recommendations, we do not think there is a need to seek debarment of those who failed to notify FHWA of significant cost increases." No action should be taken to pursue Governmentwide Debarment and/or Suspension since the purpose of suspension and debarment is to protect the public interest and not to punish.

#10 Recommendation: The Division Office should continue its oversight and coordination efforts to ensure that the containment of costs and the mitigation of delays and conflicts remain a primary CA/T Project focus.

Responsible Office: Massachusetts Division

Responsible Individual: Division Administrator

Initiative(s) and Target Date(s)

- Division Office to continue to provide its full oversight of the project and aggressive cost containment initiatives

Status

Completed/Continuous (**On-going**)

- The Project's cost containment efforts are ongoing with FHWA participating.

- The Projects Cost Recovery program is ongoing with FHWA participating.

- The FHWA MA Division Office's Contract Change procedure requires a cost evaluation of all proposed changes and this is ongoing.

#11 Recommendation: The U.S. Secretary of Transportation should consult with the Governor of Massachusetts to seek changes in the State CA/T Project leadership consistent with the recently announced change in Federal CA/T Project leadership.

Responsible Office: Office of the Secretary

Responsible Individual: Secretary of Transportation

Initiative(s) and Target Date(s)

- Secretary consults with Governor and requests change

Status

Completed

- April 11, 2000; Secretary met with the Governor, who made the management change

#12 Recommendation: Documentation of the Massachusetts Division Office's process for independent validation of CA/T Project costs should include a system for aggregation of cost and schedule related data routinely accumulated in the normal course of project oversight by FHWA CA/T staff.

Responsible Office: Massachusetts Division

Responsible Individual: Brad Keazer, Carl Gottschall

Initiative(s) and Target Date(s)

- FHWA Area Engineers will, on a quarterly basis, review and update project cost and schedule information. This information will be used by FHWA managers to verify Project Management Monthly (PMM) information presented by the CA/T Project

Status

Completed /Continuous on a monthly basis (**On-going**)

- PMM cost information reconciled with FHWA estimate

- Schedules for major milestones for the I-90 and I-93 openings discussed weekly between FHWA and CA/T

#13 Recommendation: The delegation of authority to accept annual Finance Plans for the CA/T Project should be withdrawn to FHWA Headquarters.

Responsible Office: Infrastructure

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- memorandum to Division Office

Status

Completed

- April 27, 2000, Headquarters memo withdrawing delegation sent to MA Division Office

- May 9, 2000, State notified that delegation for acceptance of CA/T Finance Plan Updates had been withdrawn to FHWA Headquarters Office of Infrastructure

- June 16, 2000, and October 2000 Finance Plan Updates delivered to FHWA Headquarters for acceptance

#14 Recommendation: The FHWA Division Office should obtain written assurance from the State that all data with respect to the independent audits of the CA/T Project (e.g., O'Brien Kreitzberg and Deloitte Touche) will be provided to the FHWA. The FHWA should independently and objectively review this and other external reviews of the Project (such as by the OIG, state auditors, etc.), and must not accept assurances provided by Project officials.

Responsible Office: Massachusetts Division

Responsible Individual: Division Administrator

Initiative(s) and Target Date(s)

- Include item in Partnership Agreement

Status

Completed

- Appendix B of the October 2000 Finance Plan Update contains the results of the independent evaluation of costs and schedules performed by the State's consultant, Deloitte Touche
- April 2000, meeting held with MTA staff to discuss how this would be accomplished and timing of reviews of draft Finance Plan Updates by planning groups and FHWA
- June 22, 2000, included as Item #4 in the Project Partnership Agreement executed by EOTC, MHD, MTA, and FHWA

#15 Recommendation: CA/T Project should perform an annual bottom-up review for the remaining years of the CA/T Project, beginning with the last quarter of 2000. The results of these efforts should be incorporated into the PMM.

Responsible Office: Massachusetts Division

Responsible Individual: Division Administrator

Initiative(s) and Target Date(s)

- PMM will be revised to include enhanced schedule and cost information.
- CA/T project will conduct bottom to top review of cost to complete as part of the annual Finance Plan Update.
- beginning October 2000
- Include item in Partnership Agreement

Status

Completed/Continuous on an annual basis (**On-going**)

- The MTA completed their reassessment of the CA/T Project cost and schedule update (CSU Rev. 7) and on September 18, 2000, provided a Rev. 7 briefing for the FHWA and OIG. This Rev. 7 cost of \$14.075 billion will be used in developing the October 2000 Finance Plan Update.
- June 22, 2000, requirement for annual total project forecast (bottom-up review) included as Item #5 in the Project Partnership Agreement executed by the Executive Office of Transportation and Construction (EOTC), MHD, MTA, and FHWA
- A revised format of the PMM has been developed and is being used for the monthly PMM meetings. The FHWA and CA/T continue to evaluate and discuss improvements and other options for the PMM.

#16 Recommendation: The data contained in the PMM should be modified to show potential project cost exposures identified in the separate document referred to as the Up/Down chart. The PMM or similar vehicle should include such items as: (1) anticipated cost exposures in design and/or construction activities; (2) projected labor rate increases; (3) anticipated petroleum price increases or decreases; (4) expected increases in operational costs such as insurance premiums, consultant support services, and materials; and (5) potential and settled claims.

Responsible Office: Massachusetts Division

Responsible Individual: Brad Keazer, Carl Gottschall

Initiative(s) and Target Date(s)

- PMM will be revised to include enhanced schedule and cost information.
- Include in Partnership Agreement.

Status

Completed/ Continuous on a monthly basis (**On-going**)

- June 22, 2000, requirement for PMM to show potential cost exposures included as Item #6 in the Project Partnership Agreement executed by EOTC, MHD, MTA, and FHWA
- A revised format of the PMM has been developed, evaluated, and is being used for the monthly PMM meetings. The FHWA and CA/T continue to evaluate and discuss improvements and other options for the PMM.

#17 Recommendation: The Significant Schedule Trends Report shows possible delays to all six remaining key milestones. The PMM should indicate why the projected delays have occurred and what measures are being considered by MTA management to remedy this deficiency.

Responsible Office: Massachusetts Division

Responsible Individual: Brad Keazer, Carl Gottschall

Initiative(s) and Target Date(s)

- PMM will be revised to include enhanced schedule and cost information.
- Include in Partnership Agreement

Status

Completed/ Continuous on a monthly basis (**On-going**)

- June 22, 2000, requirement to document projected delays, identify causes of delays, and provide measures under consideration to remedy delays is included as Item #7 in the Project Partnership Agreement executed by EOTC, MHD, MTA, and FHWA
- A revised format of the PMM has been developed, evaluated, and is being used for the monthly PMM meetings. The FHWA and CA/T continue to evaluate and discuss improvements and other options for the PMM.

#18 Recommendation: The Finance Plan should be based on more realistic cost and revenue scenarios, and include contingency plans to cover potential revenue shortfalls or cost overruns. Inclusion of contingency plans will minimize the surprises inherent in an overly optimistic forecast scenario and provide for an earlier discussion of how potential circumstances would be addressed.

Responsible Office: Program Administration

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- develop finance plan guidance

Status

Completed

- May 23, 2000, issued Finance Plan Guidance

#19 Recommendation: The Finance Plan, since it is a picture of the funding revenues and outlays for a project, should include all costs associated with the project, regardless of the source of funding. Since this project does not recognize costs borne by the State, such as personnel expenses for MTA employees, the total CA/T Project cost figures are inherently low. A more realistic picture would include such costs. Since they are directly attributable to the CA/T Project, although they would not be included in a budget for the Bechtel/Parsons-Brinkerhoff (B/PB) joint venture.

Responsible Office: Program Administration

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- for CA/T Project, review Finance Plan update - June 2000
- for all mega projects, develop finance plan guidance by April 25, 2000

Status

Completed

- May 23, 2000, issued Finance Plan Guidance
- June 16, 2000, and October 2000 Finance Plan Updates contain the costs described in this recommendation.

#20 Recommendation: By showing post-construction funding as lump-sum amounts, the annual budget and cash flow needs through the conclusion of the project financing are not clear. For example, funds needed for the GANs repayments and the conversion of advance construction should be shown annually.

Responsible Office: Program Administration

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- Include the requirement in the Finance Plan Update comment letter
- Include chart in Finance Plan Update

Status

Completed

- May 8, 2000, the comment letter issued for the March 15 Finance Plan Update contains the requirement for inclusion of a schedule in the next Finance Plan Update detailing the time frame for use of OA beyond 2003
- June 16, 2000, and October 2000 Finance Plan Updates contain out year obligations for conversion of AC
- June 22, 2000, Items #1 and #2 of the Project Partnership Agreement executed by EOTC, MHD, MTA, and FHWA limits OA to \$8.549 billion, including AC conversions.

#21 Recommendation: Although the financing requirements are intended to accurately depict the future needs of the CA/T Project, it is recommended that future Finance Plans include a short discussion of past costs and the impact these have had on the initial assumptions. This permits the reader to gain a full understanding of the finances for the Project, past, present, and future.

Responsible Office: Program Administration

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- The Finance Plan Updates will provide total cost information.

Status

Completed/Continuous for CA/T Project, with acceptance of annual Finance Plan Updates (**On-going**)

- May 8, 2000, the comment letter on the March 15 Finance Plan Update contains the requirement for inclusion of all project costs in the Finance Plan Update
- June 16, 2000, and October 2000 Finance Plan Updates contain total cost-to-go information
- June 22, 2000, Items #1 and #2 of the Project Partnership Agreement executed by EOTC, MHD, MTA, and FHWA limits OA to \$8.549 billion, including AC conversions.

#22 Recommendation: The Federal Highway Administrator should require the MHD to reach agreement with local officials on the term of a balanced statewide program. By making the agreement a formal condition of STIP approval, the FHWA and the FTA would have a means of ensuring the commitment is satisfied.

Responsible Office: Massachusetts Division

Responsible Individual: Division Administrator

Initiative(s) and Target Date(s)

- Require MHD to take the lead in developing a consensus definition of the \$400 million Statewide Program.
- Include in Partnership Agreement.

Status

Completed/Continuous (**On-going**)

- April 28, May 8, etc.; MHD planning department held meetings with transportation planning agencies and industry representatives to develop this definition.
- A Memorandum of Understanding (MOU) has been agreed to by representatives of the transportation planning agencies and the State. The State and twelve of the thirteen Metropolitan Planning Organizations (including the Boston area MPO) have signed the agreement.
- June 22, 2000, the execution of this MOU by the Massachusetts Executive Office of Transportation and Construction, the MHD, and Regional Planning Associations as a condition of STIP approval is included as Item #8 in the Project Partnership Agreement executed by EOTC, MHD, MTA, and FHWA

#23 Recommendation: The Finance Plan contains potential project offsets that have been determined to be outside the scope of the CA/T Project. These include the OCIP credits, air space leases, and the sale of the CA/T Project management building. While post-construction credits and revenues may be included in cash flow models, the Task Force recommends that they not be allowed as offsets to reduce the cost of the CA/T Project.

Responsible Office: Program Administration

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- Meet with new MTA Chairman on use of credits.
- Include issue in Finance Plan Update comment letter.

Status

Completed/Continuous (**On-going**)

- MTA Chairman assured FHWA that credits would not be shown in finance plan documents unless funds were available to be used to support cash flow needs.
- May 8, 2000, the comment letter issued on the March 15 Finance Plan Update contains this issue.
- June 16, 2000, and October 2000 Finance Plan Updates do not include these credits and future Finance Plan Updates will be monitored regarding these credits.

#24 Recommendation: The FHWA should require the CA/T Project management to obtain an independent certification as to the accuracy of the information contained in the Finance Plan. This certification would accompany the Plan upon submission to FHWA for review and acceptance.

Responsible Office: Program Administration

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- Require the independent certification

Status

Completed/Continuous - annually for the FHWA acceptance of Finance Plan Updates (**On-going**)

- Appendix I of the October 2000 Finance Plan Update contains a September 28, 2000, certification from Massachusetts' Executive Office For Administration and Finance

#25 Recommendation: The FHWA should retain the services of an independent contractor to conduct a review of the OCIP and the risks associated with the CA/T Project, and to assist the FHWA in the development of National policy on OCIPs.

Responsible Office: Program Administration

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- retain contractor by May 1, 2000
- evaluate CA/T Project's OCIP and make recommendations
- develop national policy by February 2002

Status

Underway

- May 3, 2000, contractor (AECOM, with sub-consultant of AON) selected and brought on board
- September 2000, AON completed a review of the insurance records, the interviews of principals, and the preparation of a draft report to assist FHWA in defining the insurance needs for the project.
- May 2001, final report on the CA/T Project's OCIP issued
- February 2002, Final OCIP national policy developed by AECOM and issued by FHWA

#26 Recommendation: The CA/T Project figures for extra construction costs are optimistically low. The bid discount rate of 13 percent and PCA rates of 7 percent to 10 percent should be changed to properly reflect recent trends. If this is done, the likely cost of the remaining construction work will be estimated at \$300 million to \$480 million higher than reflected in the bottom-up CA/T Project estimate. A more realistic estimate would be \$1.7 to \$1.88 billion in potential project cost overruns. This increases the potential total project cost to the range of \$13.4 to \$13.6 billion. (The \$13.4 billion figure is the total of the \$10.8 billion pursuant to the C/SU Rev. 6 estimate, plus \$900 million in allowable credits, plus the \$1.7 billion project overrun). In addition, if inflation rates rise, as is the present trend, the estimate should be further adjusted to reflect this trend. Finally, further adjustments should be anticipated for litigation, vulnerability, environmental contingencies, and other unforeseen events likely in a project of this magnitude.

Responsible Office: Program Administration

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- Include issue in comments letter on the Finance Plan Update.

Status

Completed/Continuous on an annual basis for the FHWA acceptance of Finance Plan Updates (**On-going**)

- May 8, 2000, the comment letter issued on the March 15 Finance Plan Update included this issue

- June 16, 2000, after FHWA and MTA reconciled the variances in the project cost estimates, the Finance Plan Update used basically the figures from the high end of the FHWA estimate range.

- June 22, 2000, potential forecast and variance requirements are addressed by Item #10 and Item #11 of the Project Partnership Agreement executed by EOTC, MHD, MTA, and FHWA

#27 Recommendation: The Finance Plan should include revenue sources that are likely to be available to the CA/T Project. If a revenue source requires legislation, legislative support needs to be demonstrated. If the revenue is to be provided by another State agency, agreement or concurrence from that agency needs to be obtained.

Responsible Office: Program Administration

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- Include issue in Comments letter on the Finance Plan Update

Status

Completed/Continuous on an annual basis for the FHWA acceptance of Finance Plan Updates (**On-going**)

- May 8, 2000, the comment letter issued on the March 15 Finance Plan Update included this issue.

- May 17, 2000, Governor signed the legislation. (About \$1.9 billion for CA/T and \$500 million for the Statewide Program)

#28 Recommendation: Another option, pending legislative action on the above proposals, is for the State to commit its general fund to the CA/T Project. The general funds would serve as surety until other funding sources are established. State officials advised the Task Force that funds may be available for budget surpluses or other reserve funds.

Responsible Office: Program Administration

Responsible Individual: Dwight Horne

Initiative(s) and Target Date(s)

- Include issue in Comments letter on the Finance Plan Update

Status

Completed/Continuous (**On-going**)

- May 8, 2000, the comment letter on the March 15 Finance Plan Update included this issue.

- May 17, 2000, Governor signed the legislation. (About \$1.9 billion for CA/T and \$500 million for the Statewide Program)

#29 Recommendation: The PF {Potential Forecast} for all project elements should be a best estimate of the completion cost.

Responsible Office: Massachusetts Division

Responsible Individual: Brad Keazer, Carl Gottschall

Initiative(s) and Target Date(s)

- Include the requirement for best estimate in the Partnership Agreement.

Status

Completed/Continuous on an annual basis (**On-going**)

- The CSU Rev. 7 which was completed in September 2000 fulfills this requirement for this year.

- June 22, 2000, the requirement for a best estimate of completion cost is included in Item #10 of the Project Partnership Agreement executed by EOTC, MHD, MTA, and FHWA

#30 Recommendation: The PF should be maintained on a current basis for all project elements.

Responsible Office: Massachusetts Division

Responsible Individual: Brad Keazer, Carl Gottschall

Initiative(s) and Target Date(s)

- Include the requirement to maintain on a current basis in the Partnership Agreement.

Status

Completed/ Continuous on monthly basis as part of PMM (**On-going**)

- The Project Management Monthly report has been revised to achieve this recommendation.

- June 22, 2000, the requirement for maintaining the potential forecast on a current basis is included in Item # 10 of the Partnership Agreement executed by EOTC, MHD, MTA, and FHWA

#31 Recommendation: The PF total for all project elements should not be constrained by MTA policy directives.

Responsible Office: Massachusetts Division

Responsible Individual: Division Administrator

Initiative(s) and Target Date(s)

- Include the requirement for no constraint by MTA policy in the Partnership Agreement.

Status

Completed/Continuous (**On-going**)

- June 22, 2000, the requirement for unconstrained potential forecast is included in the Partnership Agreement executed by EOTC, MHD, MTA, and FHWA

#32 Recommendation: On a quarterly basis, an overall CA/T Project Budget vs Potential Forecast Variance Report should be furnished to the FHWA. This report would contain an explanation of all significant variances, by project element, segregated into the following categories:

- The components of the reported variances that are deemed to be firm to the point of requiring a corresponding revision to the budget of the affected project element. These kinds of changes include, but are not limited to, the value of actual contract awards (or executed change orders), approved scope changes to be incorporated during design, and expected settlement amounts for asserted differing site condition claims.

- The components of the reported variances that are deemed by the CA/T Project management to be subject to further adjustment by future management corrective action, or other alternative remedies.

- The components of the reported variances that are deemed by the CA/T Project management as being speculative in nature. These include reported potential forecast variances that are difficult to quantify and price but which could have a positive or adverse effect on the future cost of the program.

- Responsible Office:** Massachusetts Division

- Responsible Individual:** Brad Keazer, Carl Gottschall

- Initiative(s) and Target Date(s)**

- Include the requirement for report in the Partnership Agreement.

- Status**

- Completed/ Continuous (**On-going**)

- June 22, 2000, the requirement for a semi-annual report is included in Item #11 of the Partnership Agreement executed by EOTC, MHD, MTA, and FHWA.

- The PMM report has been revised to provide this information on a monthly basis.

#33 Recommendation: CA/T Project management and the Division Office should continue with the cost containment initiatives to achieve the greatest savings by:

- A pro-active and aggressive change negotiation and claims defense;
- Rigorous controls to prevent scope change for remaining construction work;
- The encouragement of Value Engineering Change Proposals (VECP) to simplify construction logistics and staging on construction contracts;
- Limiting changes in scope and minimizing scope transfers between projects; and
- Adding a construction contract clause for price adjustment for fuel prices to the remaining construction contracts.

Responsible Office: Massachusetts Division

Responsible Individual: Brad Keazer, Carl Gottschall

Initiative(s) and Target Date(s)

- Division Office to continue aggressive cost containment initiatives.

Status

Completed/Continuous (**On-going**)

- The Project's cost containment efforts are on going with FHWA participating.
- The Projects Cost Recovery program is on going with FHWA participating.
- The FHWA MA Division's Contract Change procedure requires a cost evaluation of all proposed changes and this is on going.

#34 Recommendation: The Task Force recommends the FHWA and MHD enter into an agreement to formalize recommendations contained in this report which are relevant to the working relationship between the parties.

Responsible Office: Massachusetts Division

Responsible Individual: Division Administrator

Initiative(s) and Target Date(s)

- Partnership Agreement between MHD, MTA, FHWA. - June 2000

Status

Completed/Continuous (**On-going**)

- June 22, 2000, Project Partnership Agreement executed by the Massachusetts Executive Office of Administration and Finance, MHD, MTA, and FHWA; limits OA to \$8.549 billion, including AC conversions; supplements the existing MHD/FHWA Massachusetts Division Office Project Oversight Agreement as it relates to the CA/T Project.
-

Project Cost Increases

States Reporting Projects Authorized at \$10 million or more and having greater than 25% increases

Project Name	Project No.	Engineers Cost Estimate at Project Authorization	Final or Current Cost Estimate	Percent Increase	Reasons for Cost Increase
ALABAMA					
Colbert (Lauderdale County): SR 133 New Bridge over Tennessee River	ACHPP-124(7)	\$10,884,453	\$13,974,265	28.4%	This project was let with ACHPP-124(6) as one project. Taken together, the project overran by 11 percent.
Huntsville (Madison County): I-565/New interchange at Maysville Road and US 72	I-565-5(69) APD-235(45)	\$13,200,000	\$20,200,000	53.0%	Due to design problems after initial authorization, this project was not awarded to contract until 2 ½ years later. During this time period, the engineer's estimate changed from \$13.1 million to \$18.7 million. The initial authorization was never withdrawn, and the revised PS&E estimate was entered into FMIS before advertisement over two years later. Based on the current amount compared to the revised engineer's estimate, the increase is only 8%.
ALASKA					
Whittier Tunnel	0496(005)	\$41,172,782	\$66,048,796	60.4%	Original engineer's estimate was very low. The contract award amount was \$57,300,000.

Project Name	Project No.	Engineers Cost Estimate at Project Authorization	Final or Current Cost Estimate	Percent Increase	Reasons for Cost Increase
Dalton Highway (Road to the North Slope), Milepost 144-175	0654(006)	\$11,306,111	\$18,861,995	66.8%	Naturally occurring asbestos was found in the state-designated borrow (off-site material needed to properly grade the project) source, necessitating clean-up and long hauls from alternate borrow sources. Also, the borrow quantity overran considerably.
Anchorage-Homer, Sterling Highway, Milepost 37-46 and 51-58	OA3-3(11)	\$12,392,276	\$16,420,612	32.5%	The quantity of waste muck excavation hauled to a disposal site increased considerably, and the quantity of borrow excavation increased.
Whittier Access Road	0496(004)	\$10,191,487	\$13,992,546	37.3%	A legal challenge to the environmental document during construction led to an injunction to stop work and caused a \$2.125 million delay to the contractor. Also, the quantities for rock excavation and rock scaling increased.
ARIZONA					
Phoenix: I-17 Design-Build	AC-NH-CM-IM-017-1(334)	\$62,620,400	\$86,032,968	37.4%	Project was the first major Design-Build project in Arizona. The engineer's estimate was \$62,620,400 and the low bid was \$79,729,000, resulting in a 27.3% overrun of the engineer's estimate. In hindsight, we believe the engineer's estimate was low for this project – primarily because the estimators had virtually no previous

Project Name	Project No.	Engineers Cost Estimate at Project Authorization	Final or Current Cost Estimate	Percent Increase	Reasons for Cost Increase
Flagstaff: I-40/I-17 Interchange	NH-040-3(071)	\$10,727,850	\$14,693,909	37.0%	experience with major Design-Build projects. The remainder of the cost increase after the bids were received is primarily due to adjusted project features to provide wider shoulders and better HOV lane transitions. Project had an original engineer's estimate of \$10,727,850. The low bid came in at \$12,681,926.50, 18.2% over the engineer's estimate. The final cost of \$14,693,909 was 15.9% over the bid price. Therefore, the majority of the increase is directly attributable to the high bids.
Phoenix: SR-101L (Pima Fwy), I-17 to 56 th St (Phase A)	STP-600-1(006)	\$36,904,405	\$46,883,387	27.0%	Project had an original engineer's estimate of \$36,904,405. The low bid for this project was \$39,811,645, 7.9% over the original engineer's estimate. The final cost of \$46,883,387 was 17.8% over the bid price. The most significant factor causing this increase was a decision to advance certain work that would have been accomplished in subsequent contracts for efficiency and community relations reasons.
CALIFORNIA					
San Francisco: I-280, 23 rd Street to Brannon Avenue, Multi-column seismic retrofit	Q01 IM-280-1(086)	\$71,858,727	\$96,296,410	34.0%	Unanticipated costs were incurred when hazardous wastes were discovered at the construction site. Additional environmental mitigation matters also increased the cost of the seismic retrofit of the existing structure.

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Barstow, CA/San Bernardino County: I-15 Northbound lane addition	362 DPS-C020(004)	\$29,102,917	\$48,841,612	67.8%	The original plans contained several omissions including incorrect item quantities, missing retaining walls, drainage issues, traffic detour plans, and inadequate stage construction plans.
COLORADO					
Colorado Springs: I-25 Woodmen Rd Interchange, Reconstruction	IM 0252(310)	\$21,873,558	\$30,194,100	38.0%	High traffic problems, ROW difficulties, and additional environmental mitigation activities do to discovery of Prebbles Jumping Mice in work area.
Wiley Junction: SH 287 and 50, major reconstruction	NH 2872(012)	\$10,099,383	\$13,352,557	32.2%	Subgrade problems with high water table required resurveying, redesign, and additional material to raise road level.
Shale Bluffs: SH 82, NW of Aspen, major reconstruction	HB 0821(040)	\$18,767,687	\$24,054,701	28.2%	The difficult terrain coupled with the high cost area produced greater increases than was anticipated.
Hudson to Keenesburg: I-76, Reconstruction	IM 0761(167)	\$23,099,000	\$29,545,742	27.9%	Design Build project: engineer's estimate at initial authorization was not reviewed by cost estimating group. Final bid was lower than final engineer's estimate.

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DISTRICT OF COLUMBIA					
DC: Benning Rd over Anacostia River	BH-1116(020)	\$11,000,000	\$14,070,325	27.9%	Low bid higher than EE for Cofferdam and Structural Steel items.
FLORIDA					
Miami: SR 5/US 1/ Biscayne Blvd, NE 199 St to 200 St, Major intersection/ 8 lane overpass	4852 (081)	\$14,077,324	\$22,500,000	59.8%	Due to the size of the bridge, original estimate for steel and rebar was low. Also, had to establish an unplanned temporary crossing at railroad and add additional frontage roads. Part of increase due to fuel price adjustments and bonus payment to contractor for early completion of the project.
Miami: SW 2 nd . Ave. over Miami River, Replace movable span Bridge	6175 (003)	\$38,682,464	\$50,000,000	29.3%	Due to the size of the spans, the original estimate for the equipment needed to raise the leads was low. An unforeseen contamination assessment was made that increased the costs by \$400,000. Part of the increase due to fuel price adjustments.
Ft Lauderdale: SR A1A/ 17 St Causeway & Eisenhower Blvd, Replace movable span bridge.	9210(003)	\$31,027,188	\$78,500,000	153.0%	Unforeseen underground obstruction resulted in additional time and equipment. More fill-in dirt required on one side of the bridge than expected. Supplement for a claim to repair a broken underground water main. Additional construction engineering required.

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ILLINOIS					
Chicago: Michigan Ave, Randolph St to Wacker Drive	BRF-DPU-STPF-52(1)	\$11,889,226	\$15,790,400	32.8%	Final EE (a post bid analysis of the Authorization EE) came in at \$13,346,980. Low Bid was \$15,959,947. Estimates Unit reviewed the City of Chicago estimate & low bid post-letting. Temporary shoring, structural concrete, deck overlay, architectural work, sewer work and traffic signals were items of higher costs. The bid was in line for the type of work, location, and staging involved with this project.
Cook County: I-80 from IL 43 to I-294 in Tinley Park	IM -80-4(171)	\$16,781,863	\$21,462,792	27.9%	Final EE was \$18,033,725. Low Bid was \$17,862,291. Final Engineer's Estimate accurately reflected project cost. Additional costs were due to structural problems and site conditions including removal and replacement of slopewall and experimental pipe underdrain, pier retrofit, and maintenance, traffic control, and winter concrete protection associated with the additional work.
Cook County: I-55, Des Plaines River E. of Routes 12, 20, & 45	IM-55-7(219)	\$20,366,375	\$27,667,390	35.8%	Final EE was \$28,000,000. Low Bid was \$27,957,153. This project had been in a special letting which means it had been on a "fast track". Original EE was likely based on program dollars; estimate was premature and missed several quantities. Final engineer's estimate accurately reflected project cost.

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Peoria: US 24/150 (McClugage Bridge) over Illinois River	ACBHF-ACNHF - 317(38)	\$14,394,938	\$22,992,959	59.7%	Final EE was \$19,494,916. Low Bid was \$26,128,362. Final EE was adjusted prior to award because A+B, compressed time schedule, real time traffic control, steel cost increases, mobilization (causeway construction - barge rental premium, distance & in place before water level drops). The Contract Award Amount is shown as current cost.
Sangamon County: Bridge Replacement on I-55 over Lake Springfield	ACIM-ACNHI - 55-3(130)	\$26,717,003	\$33,721,584	26.2%	Final EE was \$28,580,000. Low Bid was \$36,374,609. Final EE adjusted prior to award because A+B, compressed time schedule, real time traffic control, pipe insulation system, mobilization (more, smaller barges, must haul overland/remain in place.) The contract award amount is shown as current cost.
IOWA					
Des Moines: Hwy 5, IA 28 to US 65/69, Reconstruction	NHSX 5-5(40)	\$16,402,643	\$24,003,476	46.3%	Additional work outside the original project limits was incorporated to facilitate opening the roadway to traffic.
Des Moines: I-35/I-80, Merle Hay Blvd to Beaver Creek, Major Reconstruction	IM-35-3(71)81 IM-35-3(102)81 IM-335-3(105)81	\$18,538,536	\$23,713,394	27.9%	Major overrun in bid because contractor furnished borrow resulted in award amount being 20% over estimate. Additional extra work orders after award has increased cost to current level.

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KANSAS					
Norton Co: US-283	K539 201(201)	\$10,378,000	\$13,085,983	26.1%	A significant portion of the cost increase was due to a design change made prior to the letting. As a result of the pre-bid conference, fly ash treated subgrade was added to the project by addendum. The revised PS&E estimate was \$12,358,134 and was approximately \$2 million over the estimate at authorization.
KENTUCKY					
Louisville: I-65, JFK Bridge and Approach Ramps, Bridge Cleaning & Painting	Q01 IM 0659(006)	\$10,676,638	\$15,029,641	40.7%	The project was awarded for \$13,663,310. Thus a difference of \$2,986,672 between the estimate at the time of original PR1 and actual award. The current project has only \$343,541 in actual change orders to date. Added miscellaneous work and insufficient quantities on original.
I-75, Tennessee State Line N to US 25W, Pavement Rehab & Bridge Deck Overlay	Q01 IM 0751(059)	\$14,637,088	\$20,278,320	38.5%	The project was awarded for \$16,385,503. Thus, a difference of \$1,748,415 between the estimate at the time of original PR1 and actual award. Added miscellaneous work and insufficient quantities on original.

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Knoxville: I-275, W of KY237, E to I75/Pavement Rehabilitation	Q01 IM 2759(094)	\$25,827,478	\$32,341,587	25.2%	The project was awarded for \$23,128,278 and the original PR1 had established \$25,827,478 thus a reduction of \$2,699,200. The current change orders total \$6,718,070. The change orders consisted of \$3,500,000 to repair shoulders and \$2,800,000 for payment of early completion incentive.
London: I-75, KY192 U-pass to KY80 U-pass, Interstate Widening	Q05 NH 0752(061)	\$29,854,780	\$44,261,713	48.3%	The project was awarded for \$35,494,068. Thus, a difference of \$5,639,288 between the estimate at the time of original PR1 and actual award. The total of change orders to date is \$4,362,862. The change orders consisted of \$1.7 million for fuel asphalt adjustment and \$1.4 million for insufficient quantities.
Lexington: KY4/US60 (East), Interchange Reconstruction	Q24 STP 4181(019)	\$10,713,242	\$16,472,317	53.8%	The project was awarded for \$15,240,234. Thus a difference of \$4,526,992 between the estimate at the time of original PR1 and actual award. The change orders consisted of \$3 million for fuel asphalt adjustment, insufficient quantities, and miscellaneous additional work.

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<p>LOUISIANA</p> <p>Lafayette: I-10 from Acadia Parish Line to I-49</p>	<p>IM-10-2(091)103 Q01 0102(091)</p>	<p>\$14,216,148</p>	<p>\$20,148,654</p>	<p>41.7%</p>	<p>The low bid was \$1,087,154.67 (7%) over the engineer's estimate.</p> <p>An additional 2" of hot mix asphalt concrete was added to the project to meet new pavement design standards, which were implemented after PS&E approval, at a cost of \$2,680,586.66. To insure a pavement design that would be consistent with future projects in the I-10 corridor, the change in pavement typical section was approved. Bid prices were used for the additional work.</p> <p>The extension of the acceleration lanes and deceleration lanes to meet current AASHTO Geometric design standards was added to the project at a cost of \$444,144.56. The State had originally requested and received design exceptions for the existing ramps. Bid prices were used for the extra work.</p> <p>Patching quantities for mainline I-10, the ramps and detour roads overrun by \$1,861,253. The overrun on mainline I-10 and the ramps was due to the poor condition of the existing pavement.</p> <p>A pay item to provide State Police patrols</p>

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St. James Parish: Sunshine Bridge Rehabilitation	BHF-35-03(003) Q10 3503(003)	\$13,064,512	\$21,030,592	61.0%	<p>within the work zone to slow traffic and reduce accidents was added at a cost of \$107,000.</p> <p>This project is Non-NHS; therefore, it is exempt from direct FHWA oversight (per 23 USC 106, State assumed project approval actions).</p> <p>Estimated cost for structural metalwork was grossly underestimated. The original estimate was assembled in 1986 and was never updated to current prices by the State DOT. Total number estimated amount was \$4,451,850 and low bid estimate was \$12,014,626 (difference of +\$7,562,776). All 3 bidders bid the same amount for this item.</p> <p>All 3 bids (total) were very close: \$24,340,973, (low), and \$28,143,341.</p> <p>Low bid was \$8,903,973.47 (58%) over the engineer's estimate.</p>
MARYLAND					
Baltimore: I-695 from MD 140 to MD 139, widening, resurfacing, bridge replacement, Safety; noise barriers.	Q05 6956(280) funding categories on this project include: Appns. 315, 04M, Q05, Q01, 34B	\$51,195,587	\$75,271,602	47.0%	47 change orders were issued during the life of this project. Changes and additions were made regarding noise walls.

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MASSACHUSETTS					
All projects are associated with Central Artery/Third Harbor Tunnel					
C22A2	AC-STP-90-1(218)	\$95,000,000	\$155,462,536	63.6%	Anticipated delays and accelerations to overcome.
C01B1	STP-90-1(222)	\$28,000,000	\$39,352,395	40.5%	Delayed access and accelerations to overcome.
C09A8	I-93-1(438) STP-93-1(452)	\$67,000,000	\$90,061,529	34.4%	Changed subsurface conditions, and contaminated soil.
C09B3	I-90-1(136)	\$112,000,000	\$158,566,124	41.5%	Scope addition.
C19E4	AC-STP-93-1(491)	\$14,600,000	\$18,778,618	28.6%	Changed subsurface conditions, and anticipated delays/accelerations.
C19E1	AC-STP-93-1(487)	\$140,000,000	\$190,997,113	36.4%	Scope addition, changed subsurface conditions, delays/accelerations.
C19D1	AC-BRI-93-1(474)	\$77,000,000	\$103,931,621	34.9%	Changed subsurface conditions, and design modifications.
C15A2	AC-STP-93-1(476)	\$260,000,000	\$339,196,789	30.5%	Changed subsurface conditions, and delays/accelerations.

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C19D3	I-93-1(471)	\$18,500,000	\$29,033,862	56.9%	Changed subsurface conditions, and contaminated soil disposal.
C15A1	NH-93-1(447) STP-93-1(454)	\$369,100,000	\$472,666,095	28.1%	Changed subsurface conditions, and delay/accelerations.
C17A3	I-93-1-(396)	\$73,409,000	\$110,482,610	50.5%	Scope additions, delays/accelerations.
C15A3	NH-93-1(339) STP-93-1(385)	\$106,600,000	\$156,798,545	47.1%	Changed subsurface conditions, scope additions, delays/accelerations.
MISSOURI					
St. Louis and St. Charles Counties: Page Avenue (Rt. 364) over the Missouri River	NH-364-1(9) NH-364-1(11)	\$64,603,312	\$84,936,995	31.5%	Cost increase was due to additional cost of furnishing and fabricating structural steel for the new tied arch bridge over the Missouri River.
Chesterfield (St. Louis County): Rt. 40, Missouri River to Bonhomme Creek Widening	NH-40-5(90)	\$17,681,900	\$23,524,500	33.0%	Mobilization and pavements items increased approx. \$3.1 million. Retaining wall costs in the amount of \$2,259,300 were omitted from the original engineer's estimate. These costs were added to the estimate before the project was advertised for bids.

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MONTANA					
Missoula: North Reserve Street	NH-CM-STPE 0002(266)	\$10,496,431	\$13,138,684	25.2%	Contract Award Amount = \$11,767,435 (12.1%); Complex urban project lead to WZTC cost increase of \$351,105 (3.3%) over award amount; total these two items gives 15.4% over EE.
NEW YORK					
Brookhaven: Nichols Rd @ RTE 25 Interchange	NH- 42(1)	\$14,786,000	\$18,738,000	26.7%	Minor scope changes and adjustments to meet field conditions.
Yonkers/Greenburgh, Sprain Brook Pkwy (SB) Bronx river Pkwy to Jackson Ave	STP- 8106 (19)	\$12,577,000	\$17,928,000	42.5 %	Scope changes and adjustments to meet field conditions.
Rochester: Bridge on Rte 104 over Genesee River	BH/STP-4045 (046)	\$15,174,000	\$30,202,000	99.0%	Major scope change involving complex structure rehabilitation due to undetected structural deterioration.
Westchester Co. I-287 Exit 8 Saw Mill River Viaduct	IM/HPP/ACNH- 8729 (330)	\$131,427,000	\$165,432,000	25.9%	Basis of engineer's estimate did not reflect market conditions and the difficult time schedule.

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OHIO					
Toledo: SR-25, Cherry St. to I-280, Reconstruction (with added capacity)	STP-F954 (089)	\$17,555,550	\$23,085,178	31.5%	The plans failed to estimate properly the amount of solid waste to be removed; therefore, there was approximately \$8,400,000 worth of change orders associated with this project. The bids came in approximately \$750,000 below the EE and about \$2,000,000 of contract work was not performed resulting in the 32% increase.
OKLAHOMA					
Poteau: US 59, Poteau Bypass	STPY-40A(421)	\$13,451,250.00	\$17,388,019	29.2%	The contract was awarded at this level above the engineer's estimate.
OREGON					
Jefferson County: Crooked River Gorge Bridge (US 97)	BRF-RSTP-S004(32)	\$11,682,577	\$15,115,909	29.4%	Low bid was 28% above EE.
Eddyville to Cline: US 20	STP-S003(10)	\$16,763,560	\$22,023,888	31.4%	Low bid 8% above EE, major changes in earthwork quantities, overruns of traffic control items due to earthwork problems.

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PENNSYLVANIA					
Bucks County: Neshaminy Creek/ Woodburn Road	Q01-X061-039	\$11,081,364	\$17,045,580	53.8%	17% of this increase was attributable to the low bid amount. The project scope was expanded to include \$3.4m worth of extra work. It experienced considerable overrun in accelerated concrete pavement patching.
Lehigh & Northampton Counties: PA 22	Q05-X053-104	\$47,327,001	\$69,522,496	46.9%	27% was attributable to the low bid amount. Incentive payment, ROW fence, removal of unsuitable material, stabilization treatment, ITS work, additional roadway improvements and overlay, and roadway tie-ins.
Delaware County: Ridley Creek Bridge	33C-X063-105	\$10,835,140	\$14,309,083	32.1%	The entire increase was due to the low bid amount.
Westmoreland County: Smithton Hi-Level Br/ Yough River	Q10-X125-145	\$13,995,089	\$18,170,992	29.8%	23% of this increase was attributable to the low bid. The remaining was due to unforeseen work – slope stabilization and additional structure repairs.
Clarion County: SR 80, Williamsburg West Rehab	04M-X103-011	\$13,135,054	\$16,697,631	27.1%	13% of the increase was attributable to the low bid amount. Additional work was added to accommodate traffic volumes due to commercial development. Concrete paving and patching work was added to repair/replace deteriorated pavement.

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SOUTH DAKOTA					
Sioux Falls: I-229 Design Build Project	IM 229-2(50)2	\$ 25,146,820	\$ 33,511,307	33.3%	Being the first design/build project that the State of South Dakota entered into, the engineer's estimate did not accurately reflect the risk and warranty being taken on by the contractor, resulting in a low bid that was 29% above the EE. Some additions under construction and changed site conditions have resulted in the other minor increases.
TENNESSEE					
Chattanooga (Hamilton County): I-75, widening from south of SR 320 to north of Shallowford Rd	NH-I-75-1(95)3	\$31,617,489	\$43,885,526	38.8%	The contractor's bid price was 13.4% over the original EE. The quantity of borrow excavation needed for the project greatly exceeded the estimated quantity resulting in a cost overrun of 11.9% of the original contract amount. Other misc. quantity overruns and added work (13.5%).
Shelby County, TN and Crittenden County: AR, I-40 Bridge over Mississippi River seismic retrofit	IM/BSRF-40-1(271)0	\$20,937,227	\$30,915,272	47.7%	Project includes many specialty items and the original estimate had no historical data available for comparison. The scope and special type of work precludes many in-state contractors from bidding and results in less competition. The original cost estimate of cofferdam and

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					temporary structure work was erroneously low.
TEXAS					
Amarillo: Interstate 40, Washington St. to Arthur St. (Interchange with Interstate 27)	NH 98(402)	\$24,079,226	\$32,833,732	36.4%	Four bids were received varying from 36% to 65% over the engineer's estimate. Bid analysis by TxDOT and justification reviewed by FHWA revealed good competition.
Laredo: FM 3464, Interstate 35 to the proposed 4 th International Bridge	NH 98(488)	\$24,631,311	\$35,704,774	44.9%	Major change order was executed to extend the length of the frontage roads within the limits of the project to alleviate US/ MX border congestion.
El Paso: SH 178 (Aircraft Rd.), New Mexico State Line to SH 20	NH 98(32)	\$14,838,858	\$22,119,837	49.1%	Major change orders were executed to modify the originally proposed roadway and interchange to better address the area needs near an US/MX border crossing.
Texas-Louisiana: Interstate 10 at the Sabine River (State Line) Replacement of a Mile long bridge	BR98(476)	\$31,099,515	\$39,350,080	26.5%	Five bids were received varying from 25.5% to 50% over the engineer's estimate. Bid analysis by TxDOT and justification reviewed by FHWA revealed good competition.
Sulphur Springs: Interstate 30 from SH19 to SH11	IM 30-2(80)	\$12,014,499	\$15,376,141	27.9%	Five bids were received varying from 28% to 33% over the engineer's estimate. Bid analysis by TxDOT and justification reviewed by FHWA revealed good competition.

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VIRGINIA					
Hampton: I-64 widening from E. of Rt. 17 to E. of Hampton Roads Center Parkway	NH-064-3(412)	\$12,140,961	\$15,533,146	27.9%	Plan Errors and items not included in the plans that were necessary to construct the project.
WEST VIRGINIA					
Logan County: WV 10 and WV 80, new Intersection location	HP-1159(004)C	\$13,298,512	\$16,774,200	26.1%	The low bidder (4 bidders) was 26% over the EE. Based on a review of estimate and bids, it was concluded that unclassified excavation was estimated too low.
Hardy County: Corridor H (US 33) over Clifford Hollow	APD-0484(124)CTC	\$14,190,693	\$17,777,600	25.3%	The low bidder (5 bidders) was 25% over EE. Based on review, it was concluded that erection of steel and concrete (remote location) were underestimated.